



Development of a honey based tonic syrup for cancer-related fatigue

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Background and objectives: Cancer-related fatigue (CRF) is the most common and distressing symptom that affects overall quality of life of cancer patients. Due to the multi-factorial etiology, there is currently no “gold standard” for treatment of CRF. Considering the growing importance of national traditional medicines, natural remedies are viewed as playing distinctive role. “*Jollab*” is a natural syrup prescribed by Iranian traditional medicine (ITM) scholars as tonic especially for the cardiovascular system. “*Jollab*” can consist of several ingredients although almost all traditional recipes include saffron and rose water as well as sugar or honey. The aim of this research was to develop a honey based “*Jollab*” and evaluate hydroxymethylfurfural (HMF), a product of fructose decomposition, as an indicator of heating effect on honey. **Methods:** Several “*Jollab*” formulations with different proportions of honey and rose water were prepared using deslagging procedure through direct or indirect heating. The HMF content of the formulation was measured according to International Honey Commission (IHC) method. **Results:** “*Jollab*” was formulated with saffron (0.1%), honey (57.1%) and rose water (42.8%). Two-thirds of the rose water was evaporated during deslagging procedure through direct heating (up to 95 °C) and the remaining was added to the honey at the end of the process. Moreover, the HMF content of the prepared *Jollab* was 64.47±5.49 mg/kg which meets ICH standards. **Conclusion:** The developed honey based *Jollab* could be considered as a safe formulation for further studies in the field of CRF due to the acceptable HMF content.

Keywords: fatigue, HMF, honey, Iranian traditional medicine (ITM), syrup
